

PATENT SPECIFICATION

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(54) AGENTS CONFERRING A PEARLY LUSTRE TO LIQUID OR PASTY PREPARATIONS

- (71) We, FARBWERKE HOECHST AKTIENGESELLSCHAFT, Vormals MEISTER LUCIUS & BRUNING, a Body Corporate recognised under German law, of, 6230 Frankfurt (M)-Hoechst, Germany, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed to be particularly described in and by the following statement:—
- Shampoos, especially egg shampoos, dish cleansing agents, shaving soaps and other cleansing agents or cosmetic preparations, for example, liquid or pasty hair hardeners, are often rendered turbid in order to give them a better aspect, of substances are incorporated into them which, at room temperature, precipitate in the form of fine, nacreous crystals.
- These agents conferring a pearly lustre have to meet the following demands:
- a) They must be stable at temperatures up to about 60°C, that is, the pearl lustre must not disappear at tropical temperatures.
 - b) They must be resistant to storing at various and unsteady temperatures, that is, a deposition of pearl lustre crystals must be avoided.
 - c) The crystalline form must be kept also on recrystallization, that is, after their total melting at an elevated temperature the crystals must be recovered in the same uniform size and nature regardless of their being cooled slowly or rapidly.
 - d) The crystals must show a high optical brilliance.

It is known to use, for example, zinc stearate or zinc palmitate as agents conferring pearl lustre or to produce the latter in the preparation itself by using a zinc salt and stearic acid or palmitic acid. It has also been recommended to add stearic acid or stearic acid ester, for example, diglycol-monostearate or diglycol-

distearate, for example, to shaving soaps in order to make them turbid. These known agents conferring pearl lustre, however, do not meet practical requirements in every aspect. In many cases the required resistance to temperature and storage is not realized.

The present invention provides agents for conferring pearl lustre for rendering liquid and pasty preparations turbid, which comprises a combination comprising a crystalline fatty acid glycol ester of the formula

I $\text{XO}(-\text{CH}_2-\text{CH}_2-\text{O})_n-\text{CO}-\text{R}_1$,
 wherein R_1 represents a saturated or unsaturated alkyl radical having 12 to 20, preferably 16 to 18 carbon atoms, X represents hydrogen or the radical $-\text{CO}-\text{R}_2$ and n represents one of the integers of from 1 to 5, preferably 2 to 3, and a fatty acid mono-alkylolamide of the formula

II $\text{R}_2-\text{CO}-\text{NH}-\text{Y}-\text{OH}$
 wherein R_2 represents a saturated or unsaturated alkyl radical containing 10 to 20 carbon atoms and Y represents an alkylene group containing 2 or 3 carbon atoms, in a ratio by weight of from 1:9 to 9:1, preferably from 4:6 to 6:4.

The combination according to the invention meets all the requirements regarding the properties of agents conferring pearl lustre in an ideal manner. The preparations rendered turbid by means of the combinations according to the invention are very highly resistant to storing, since the specific gravity of the combination amounting to about 1.04 is substantially identical with that of most commercial turbid cleansing agents. Moreover, the pearly lustre formers according to the invention are restrained from separating in the heat due to the fact that with increasing temperature the dissolved pearl lustre formers show a thickening effect on the solutions of the preparations, for example,

surfactant solutions. This increased viscosity inhibits the separation of undissolved pearly lustre forming agent, the special property of said agents consists in the fact that, for example, at temperatures above 70°C the completely dissolved crystals of the agents conferring a pearly lustre recrystallize in the same original form independent of their being cooled slowly or quickly. This is extraordinarily surprising since in most cases the individual components of the mixture according to the invention when used *per se* change their pearly lustre appearance under the above-mentioned extreme conditions, that is, they recrystallize in a turbid, coarse-surfaced crystalline form or inhomogeneously in lumps.

The pearl lustre formers according to the invention are added to the preparations to be rendered turbid generally in quantities of 0.2 to 40% by weight, preferably of 1 to 5% by weight. The amount of agents conferring pearl lustre to be used depends, especially, upon the desired optical density of the product and, if surfactant solutions are concerned, upon the total surfactant concentration. Generally, it can be said that elevated surfactant concentrations require elevated portions of agents conferring pearl lustre.

The following Examples illustrate the invention:—

Example 1

- 35 *Pearl lustre shampoo*
Sodium salt of C_{12} - C_{14} fatty alcohol-
diglycol ether sulphate 57.0%
diethanolamine salt of a condensation
product of coconut fatty acid and
40 sarcosine of 40% strength 15.0%
diglycol-monostearate 1.6%
palmitic acid mono-ethanolamide 2.4%
sodium chloride 1.2%
water, dyestuffs, preserving agents 22.8%
45 When proceeding as described above, the
substances conferring pearl lustre, viz.
diglycol-monostearate and palmitic acid
mono-ethanolamide were clearly dissolved
in the tensides at about 80°C, water and
50 sodium-chloride, for example, were then
added while stirring and the whole was
allowed to cool; the pearl lustre which ap-
peared at a temperature of from 50 to
60° met all the above-mentioned require-
55 ments.

Example 2

Pearl lustre concentrate.

- Sodium salt of C_{12} to C_{14} -fatty alcohol
60 diglycol-ether sulphate of 28%
strength 70%
triglycol distearate 12%
lauric acid mono-ethanolamide 8.0%
sodium chloride 4.0%
65 water 6.0%

All components were melted together at about 80°C and allowed to cool.

When applied, the concentrate showed the advantage that it could be added with stirring in the cold to any other preparation to be rendered turbid so that the otherwise usual dissolving and forming process for the crystals of pearly lustre was superfluous.

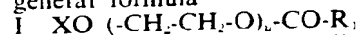
Example 3

- High-molecular carboxy-vinyl polymer (Carbopol 40) (Registered Trade Mark) 2.0%
pearl lustre concentrate (Example 2) 3.0%
(water, perfume, dyestuff, concentrating agent, NaOH for the neutralization at pH=7.0) ad 100.

All constituents were dissolved in water and thickened by neutralization. The jelly showed a slight turbidity of pearly lustre.

WHAT WE CLAIM IS:—

1. An agent for conferring pearl-lustre for rendering an aqueous liquid or pasty preparation turbid, comprising a combination of a crystalline fatty acid glycol ester of the general formula



wherein R_1 represents an alkyl radical having from 12 to 20 carbon atoms, X represents hydrogen or the radical $-CO-R_1$ and n represents an integer of from 1 to 5, and a fatty acid mono-alkylolamide of the formula



wherein R_2 represents an alkyl radical having from 10 to 20 carbon atoms, and Y represents an alkylene radical having 2 or 3 carbon atoms in a ratio by weight of from 1:9 to 9:1.

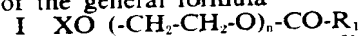
2. An agent as claimed in claim 1, wherein R_1 is an alkyl radical containing from 16 to 18 carbon atoms.

3. An agent as claimed in claim 1, wherein n is an integer of 2 or 3.

4. An agent as claimed in any one of claims 1 to 3, wherein the two components are present in a ratio by weight of 4:6 to 6:4.

5. An agent for conferring pearl-lustre for rendering a liquid or pasty preparation turbid as claimed in claim 1, as described in any one of the Examples herein.

6. An aqueous pearl-lustre concentrate containing as essential ingredient fine nacreous crystals of a fatty acid glycol ester of the general formula



wherein R_1 represents an alkyl radical having from 12 to 20 carbon atoms, X represents hydrogen or the radical $-CO-R_1$ and n represents an integer of from 1 to 5, and a fatty acid mono-alkylolamide of the formula



wherein R_2 represents an alkyl radical hav-

ing from 10 to 20 carbon atoms, and Y represents an alkylene radical having 2 or 3 carbon atoms in a ratio by weight of from 1:9 to 9:1.

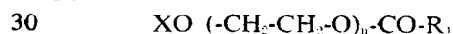
5 7. An aqueous pearl-lustre concentrate as claimed in claim 6 wherein R_1 is an alkyl radical containing from 16 to 18 carbon atoms.

8. An aqueous pearl-lustre concentrate as claimed in claim 6 or claim 7 wherein n is an integer of 2 or 3.

9. An aqueous pearl-lustre concentrate as claimed in any one of claims 6 to 8 wherein the 2 components are present in a ratio by weight of from 4:6 to 6:4.

10. An aqueous pearl-lustre concentrate as claimed in any one of claims 6 to 9 which contains as a further component 57 to 70% by weight, calculated on the composition, of a dispersing agent which is a sodium salt of a C_{12} to C_{18} -fatty alcohol diglycolether sulphate.

11. A process for rendering aqueous liquid or pasty preparations turbid in order to produce a pearly lustre, which comprises admixing with the preparations by heating to above 70°C a pearly lustre producing agent essentially comprising a fatty acid glycol ester of the formula



wherein R_1 represents an alkyl radical having from 12 to 20 carbon atoms, X represents a hydrogen atom or the radical $-CO-R_1$ and n represents an integer of from 1 to 5, and a fatty acid mono-alkylolamide of the general formula



40 wherein R_2 represents an alkyl radical having 10 to 20 carbon atoms, and Y represents an ethylene propylene or iso-propylene radical, the two components being present in a ratio by weight of from 1:9 to 9:1.

45 12. A process as claimed in claim 11, wherein R_1 represents an alkyl radical having from 16 to 18 carbon atoms.

13. A process as claimed in claim 11 or 12, wherein the two components of the combination used as pearl-lustre producing

agent are present in a ratio by weight of 4:6 to 6:4.

14. A process as claimed in any one of claims 11 to 13, wherein the combination used as pearl-lustre producing agent is added to the preparation in a quantity of from 0.2 to 40% by weight.

15. A process for rendering aqueous liquid or pasty preparations turbid in order to produce a pearl-lustre which comprises admixing to the preparations an aqueous pearl-lustre concentrate as claimed in any one of claims 6 to 10.

16. A process for rendering liquid or pasty preparations turbid conducted substantially as described in any one of the Examples herein.

17. A turbid aqueous liquid or pasty preparation whenever prepared by a process as claimed in any one of claims 11 to 16.

18. A liquid or pasty cosmetic or sanitary preparation having a pearly-lustre which contains a combination of a crystalline fatty acid glycol ester of the formula



wherein R_1 represents an alkyl radical having 12 to 20 carbon atoms, X represents a hydrogen atom or the radical $-COR_1$, and n represents an integer of from 1 to 5, and a fatty acid mono-alkylolamide of the formula



wherein R_2 represents an alkyl radical having 10 to 20 carbon atoms, and Y represents an ethyl, propyl, or isopropyl radical the two components being present in a ratio by weight of from 1:9 to 9:1.

19. A preparation as claimed in claim 18, which contains the combination of the two components in a quantity of 0.2 to 40% by weight.

20. A preparation as claimed in claims 18 or 19 wherein the ratio by weight of the two components is from 4:6 to 6:4.

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